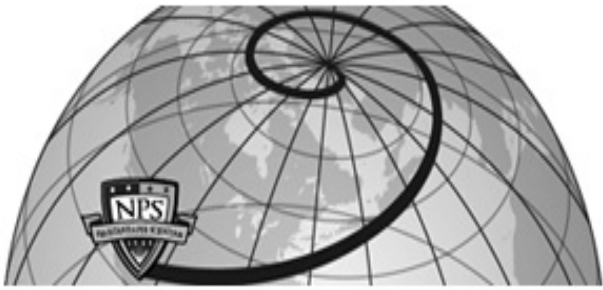

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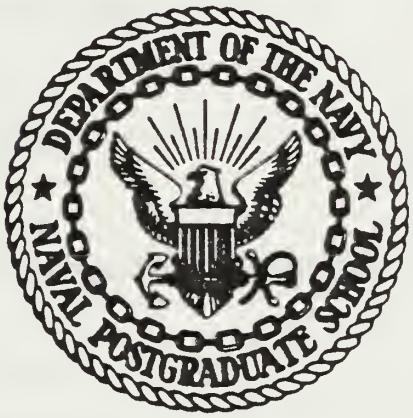
Clickener, John Ross

Monterey, California. Naval Postgraduate School

IMPLEMENTING REPLACEMENT COST ACCOUNTING

John Ross Clickener

NAVAL POSTGRADUATE SCHOOL
Monterey, California



THESIS

IMPLEMENTING REPLACEMENT COST ACCOUNTING

by

John Ross Clickener

December 1976

Thesis Advisor: J. M. Fremgen

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IMPLEMENTING REPLACEMENT COST ACCOUNTING

by

John Ross Clickener
Major, United States Marine Corps
B.A., University of Illinois, Urbana, 1964

Submitted in partial fulfillment of the
requirements for the degree of

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I. INTRODUCTION

Although the effect of inflation has been widely discussed, efforts over the last thirty years either to control or to end this decline in purchasing power have shown little success. Presuming that it is unlikely that present and future efforts will be more successful, it becomes important to find methods which recognize the effects of this phenomenon on the business community and enable them to be reported to the public. The purpose of this thesis is to examine the current methods of reporting the financial effects of inflation in the United States. The theoretical merits of the various inflation accounting alternatives are still subject to much debate by accountants. However, the SEC has taken the initiative by directing the use of replacement costing in providing supplemental data to financial reports.

In conducting the basic research for this thesis, a wide range of material was examined. While certain basic writings were found to be of value in developing an understanding of inflation accounting theory [References 17, 27, 42, and 45], it was decided to concentrate primarily on two other sources. The first was recent writings in the literature of professional accounting and financial management. These writings present both the debate over theoretical issues and discussions of the problems foreseen in accounting practice. It was found that proponents of various theories had, over a period of a few years, markedly modified their views in some cases or had carefully refined their proposals through experimentation and further research. The proposals of professional accounting groups and government recommendations and regulations provided the second source. Lastly, a study was made of one firm which adopted

a form of inflation accounting for its 1976 fiscal year. This study provided insight into the real problems of implementation encountered by a business and also forms a basis for the assessment of the impact of the change in accounting methods on the financial success of the business. Based on the writings and the case study, conclusions as to implementation and impact are drawn.

Chapter II serves as a foundation for the thesis. The first section contains a discussion of valuation and inflation. The historical development of valuation theory is traced from its origins through early practice in the United States to present generally accepted accounting practice (GAAP). Inflation is examined both as to its history and as to its dual effects on the economy. The second section presents an introduction to the principal alternatives to the present historical cost valuation system. The third section identifies some of the attempts by foreign countries to recognize the impact of inflation in financial statements.

Chapter III describes current practice in England. Since the economic and accounting systems are quite similar to those of the United States, certain parallels can be drawn, particularly since England's adoption of an inflation accounting system precedes any in the United States. Additionally, the case study in Chapter VI is of a firm which has implemented the English system. The first section introduces the problem of inflation in England and describes the initial actions taken by the government in taxation and in the establishment of the Sandilands Committee. The second section describes the findings and recommendations of that Committee. Of particular importance is the recommendation to address specific price change through the use of replacement costs. Finally, the implementation is discussed.

Chapter IV describes the recent history and current status of inflation accounting concepts in the United States from two perspectives. The first section reports on the proposals of the accounting profession. Both the views of the American Accounting Association (AAA) and the American Institute of Certified Public Accountants (AICPA) are presented. Both groups produced important studies and proposals for the recognition of inflation in financial reporting through the use of general price-level adjustments. The second section describes initial government direction by suggestion and, finally, government intervention through the issuance of a regulation which requires the limited use of replacement cost information.

Chapter V examines the problems attendant upon developing replacement cost data. Since the problems and methods employed in this section are somewhat dependent upon the nature of the item being revalued, separate sections deal with fixed assets, inventories, and other assets and liabilities.

Chapter VI provides an examination of how one company implemented an inflation accounting system. Although the basis for its system is the English Current Cost Accounting (CCA), previous chapters will have identified the similarities between it and the SEC's requirement. The first two sections serve to introduce the firm and to identify its direct interest in the Sandilands Committee Report. The third section examines the methods employed by the firm to develop replacement costs. This effort will be examined from both the perspective of management and from that of an outside appraisal firm. The fourth section reports on the impact in the financial statements of the adjustment from historical

cost to replacement cost accounting. The final section in the chapter examines alternatives to the valuation methods employed by the firm in terms of development, reliability and relevance, and their impacts on the financial statements.

Chapter VII provides conclusions as to the anticipated value of replacement cost financial statements and offers opinions concerning appropriate valuation methods. The final section serves as a summary of the current state of inflation accounting in the United States.

II. BACKGROUND

A. HISTORICAL PERSPECTIVE

From the earliest known practice of accounting in the pre-Christian period, through the development of the double entry system of bookkeeping in fourteenth century Italy, to present practice in the United States, the objective of accounting is to record and report the activities of a firm with respect to the use of assets entrusted to it by all outsiders [Reference 27, p. 31]. Since the initial use of accounting was basically for short-term ventures, there was little concern for either the expiration of the life of the assets used by the venture or for any changes in the buying power of money. Insuring that all transactions were recorded in an objective and verifiable manner was the principal purpose of accounting prior to the 1800's. To accomplish this goal, there evolved a concept of valuation which recognized assets at their cost to the firm at the time of acquisition. This basic concept of historical cost accepted the purchase price, unadjusted for any subsequent changes in prices [Reference 49, p. 186], as the basic element in determining income and the net worth of the firm.

In the 1800's it was recognized that the gradual expiration of service value of fixed assets should be recognized in the accounting system. By the 1900's the incorporation of depreciation into accounting practice was generally accepted. However, the methods and extent of its application varied widely from firm to firm [Reference 27, p. 38]. While this advance in the theory of accounting improved the recognition of real income and net worth, it did not necessarily recognize the costs required to perpetuate the existence of the firm, nor did it assist in providing funds for the replacement of expired fixed assets.

Through the early 1900's the two concepts, historical cost valuation and depreciation, continued to evolve. In the recognition of changes in value, new practices developed. Firms began to write up assets when it appeared that their market values were greater than their original costs [Reference 27, p. 38]. This approach was first recognized in American accounting literature in 1900. Also, during this period, various alternative concepts of valuation -- including current value, economic value, and price-level adjustments -- were topics of considerable interest [Reference 27, p. 66]. The stock market crash of 1929 brought to an end the upward valuation of assets. Conservatism assumed paramount importance, and financial reporting once again returned to historical costs as the basis for valuation of assets. The merits of historical costs were seen to be objectivity and verifiability, because some specific monetary value was exchanged for some good or service in a completed transaction. The use of subjective values instead of actual costs was considered misleading, particularly in presenting periodic reports to the investors in a consistent manner. For this reason, the use of the basic concept of original acquisition cost has continued, with some minor modifications, as the valuation method for accounting practice in the United States.

During the period from 1930 through 1965 there were continuing efforts to refine the concepts of valuation and depreciation. The methods of depreciating fixed assets were further developed and standardized. As previously noted, historical costs continued as the basis for valuation. However, the write-down of values to market or net realizable value, if lower than cost, was accepted even though the results differed from historical cost. Also, in the late 1940's a renewed interest in the use

of the techniques of writing up assets to represent increases in value appeared in the professional literature.

The inflation experienced in the post-World War II period spurred discussion of alternative techniques. With the loss of purchasing power of money, use of the monetary unit as the reporting unit for financial statements became less meaningful as the disparity between a base year dollar and a current year dollar increased [Reference 52, p. 21]. Additionally, since the assets of a firm were acquired over a number of years, there was no single simple adjustment which permitted easy reconciliation of the different year costs. Deflation could also occur, as it did during the early 1900's and again following the crash of 1929. The general trend since 1900, however, has been steadily upward [Reference 27, p. 200]; and there have been several periods of dramatic inflation, such as that which has recently been experienced. Because the general trend has been inflationary, the theme of this thesis will address that effect on accounting. However, the reader must remember that a deflationary period would also affect the information conveyed to the users of financial statements.

During periods of general price change, inflationary or deflationary, the highly desired qualities of objectivity and verifiability possessed by historical costs were no longer sufficient by themselves to meet the needs of statement users [Reference 6, p. 17]. Many authorities felt that the existing system did not meet the criteria of relevance, materiality, and comparability. For example, the original prices of identical factories constructed in 1930, 1940, and 1950 would not be of value to statement users in determining the ability of the firm to replace

these plants and to continue in business. Problems caused by the general inflationary trend were not peculiar to the United States but were occurring world-wide. The most extreme examples of inflation were found in South America where rates ran into high triple digits [Reference 23, pp. 30 and 16, p. 32]. However, European and Asian countries were also confronted with the difficulty of coping with changes in purchasing power of their currencies. The various methods employed in some of these countries will be discussed in Section C to this chapter and in Chapter 3. Before proceeding with that discussion, the nature of price-level changes and valuation alternatives will be discussed.

B. ALTERNATIVES TO HISTORICAL COSTS

As noted in the preceding section, the effects of inflation caused the accounting profession to search for a new method of measuring income. This search led to the two central issues of dealing with inflation -- first, the unit of measurement, and, second, the method of valuation. As noted in Chapter 1, it is not the purpose of this thesis to argue the merits of any particular system. However, it is essential to make clear the distinctions between the various proposals which have been recognized in the literature. Therefore, before proceeding with an examination of the efforts of various countries to deal with inflation in their accounting systems, the relevant concepts will be identified and sources for further examination of these specific proposals will be noted.

Price changes are differences in the exchange values of goods and services over time within a given market. Accounting may focus on either specific price changes or general price changes, or it may address both.

Specific price changes are simply increases or decreases in the prices of specific goods and services. General price change is the average of all specific price changes in a period. A third notion is relative price change, the difference between the specific change in price for a given good or service, and the average or general price change in the same period.

General price-level changes are the result of a change in the purchasing power of the dollar over time. This change in purchasing power complicates the measurement of both income and net worth, for the unit of measure has become elastic. A uniform measurement standard can, however, be achieved through the use of a price index which relates a base period of measurement to the current period by recognizing the difference in the exchange value of the dollar. Such an index is a composite of all specific price changes, which are averaged to produce a general price index. Currently the most commonly recognized general index in the United States is the Gross National Product Implicit Price Deflator (GNP Deflator) [Reference 8, p. 34]. It is the problem of average changes in the exchange value of the dollar which proponents of General Price-Level Financial Statements (GPLFS) address [Reference 10, p. 15]. Their goal is to apply a standard unit of measure. General purchasing power, not the dollar, becomes the unit; and comparability of financial data over periods of time is said to be restored. The effect of this method is to restate historical costs on the balance sheet and to change the amounts but not the timing of gains and losses on the income statement. This method is also known as common dollar accounting and as stabilized accounting.

The second element of price change, specific price change, is a reflection of the changes in the prices of individual goods over time. While during inflation there is an overall loss of purchasing power of a dollar, not all goods change prices at the same rate or even in the same direction [Reference 17, p. 20]. The occurrence of these specific price changes leads to various methods of addressing the appropriate values to be used in the measurement of income and net worth. Current value accounting is the term which encompasses the various alternatives proposed to replace historical cost valuation. Within this context there are two principal approaches, the use of current exit values and the use of current entry values. Exit values represent the prices a firm could obtain by selling assets in the market. Entry values are the prices a firm would have to pay in the market to obtain assets. There is a third, but less widely recognized approach, which recognizes the economic value of assets by discounting the expected future cash flows of the assets [Reference 10, p. 18]. However, the estimating of the cash flows and the selection of discount rates make the use of such a system very difficult. It has not been widely supported as an alternative to historical costing.

Exit values have been supported as an alternative by many authorities. Net realizable values are oriented to a conservative presentation on the balance sheet of the current value of a firm and have been accepted in practice for some purposes [Reference 5, p. 336]. This method does recognize the effects of specific price changes and, therefore, introduces the net change in asset exit, or disposition, values into the determination of income. On other than theoretical grounds, one of the major

difficulties in implementation is the absence of a ready market for some assets.

Current entry value, or replacement cost, seems to be the most favored method of dealing with specific price changes. Here the emphasis is placed on the cost required for the firm to maintain its present operating position. Use of this method produces holding gains or losses through the adjustment of historical costs to current costs. Again there are theoretical arguments against this method, and there are certain difficulties in its implementation.

Regardless of the method, the basic goal of current value accounting is to recognize price changes and their impact on the firm. The effect of current value methods is to restate asset values on the balance sheet and to change the timing but not the amounts of recognized gains and losses. The unit of measure under this system is the dollar.

The simultaneous treatment of both types of price changes has also been extensively discussed in the literature. Under such a system, historical costs are restated in terms of common dollars; then any further specific price change relative to the general, or average, price change already dealt with is recognized in the accounts. It is argued that neither adjustment alone is sufficient, but that, by making both adjustments, statements that are relevant and interpretable will be produced [Reference 46, p. 51].

For a more thorough discussion of the four principal methods of valuation -- historical costs, replacement costs, discounted cash flows and current exit prices -- the reader is invited to examine Reference 45. The basic papers contained in this volume discuss both the theoretical and practical aspects of each proposal. In turn, other prominent members

of the accounting profession criticize the views of the proponents of each position in order to provide the reader with a balanced perspective. The volume concludes with assessments of the four methods. A more detailed presentation of the replacement cost method, particularly in terms of the theoretical basis for the method, is to be found in Reference 17.

C. FOREIGN INFLATION ACCOUNTING

Other countries have been faced with the same problems as the United States in attempting to incorporate the impact of inflation into their respective accounting systems. Methods of recognizing other general price-level changes or specific price changes have been adopted. No country to date has employed a system which adjusts for both types of change. England will be the subject of the next chapter, for the economic events and both the basic accounting system and the method of reporting the effects of inflation closely parallel those of the United States.

The most widely known inflation accounting case, prior to the new system in England, is that found in the Netherlands and which initially gained prominence in an article about the Philips Company [Reference 26]. Because the Netherlands has no direct parallel to the generally accepted accounting principles of the United States, firms are free to use those techniques which meet the standard of "sound business practice" and to tailor those techniques to meet the needs and desires of each firm [Reference 23, p. 30]. The basic premise for all firms using methods which recognize inflation is that income is determined by matching current revenues with the current replacement costs of the firms' assets. Replacement cost adjustments are made for specific price changes through

the use of numerous specific indices. Replacement cost statements are used for both internal purposes and for external reporting. However, there is no assurance of comparability of reports by different firms, because the indices used and the adjustments made can and do vary from firm to firm [Reference 3, p. 28]. There has been no apparent difficulty in making these adjustments [Reference 26, p. 37], and most managers employing inflation accounting feel that the lower reported earnings and the apparent lower price per share of stock are more than offset by the benefits of the better information provided for decision making [Reference 3, p. 28].

France, prior to the 1959 devaluation of the franc, permitted the voluntary revaluation of assets. Fixed assets were adjusted for specific price changes through the use of three raw material price indices, which were computed and published by the government [Reference 23, p. 30]. Market price averages were used to revalue investment instruments, but inventories were carried at the lower of cost or market without upward revaluation. While the system could be considered to be a compromise between the recognition of general and specific price changes, the goal was to recognize changes in relative values rather than in terms of changes in general purchasing power.

The countries of South America have faced the highest rates of inflation in the world since those experienced by Germany in the period following World War I. In this region, the pattern of recognizing the effects of inflation in accounting practice has been to make adjustments for the general price-level changes. Brazil enacted legislation to address inflation by attempts at both its control and its recognition in

financial accounting. Strict wage and price controls were imposed along with currency revaluation [Reference 16, p. 37], and firms were required to make annual monetary adjustments in reporting their fixed asset accounts [Reference 23, p. 31]. Additionally, a reserve account for the maintenance of working capital in terms of purchasing power was required to preclude decapitalization through dividend distributions [Reference 25, p. 32]. The government's general price index was applied to working capital which existed at the beginning of the period to determine the amount required for the reserve. While the legislative requirements in other countries differ, both Argentina and Chile required that adjustments be made in the financial statements for changes in the general price level in their respective countries.

With this brief look at inflation accounting methods employed in various parts of the world completed, the method which has been developed in England will next be examined in detail.

III. ENGLAND AND THE SANDILANDS COMMITTEE

A. BACKGROUND

During the post-World War II period and through the 1960's, England also experienced inflation, but not in the magnitude of some of the countries discussed in the preceding chapter. Price-level accounting in various forms was the topic of considerable writing and discussion. The 1967 Companies Act recognized that some firms were adjusting their statements for inflation. Corporations which had revalued their assets were required to reveal the facts of the revaluation and also to disclose any material differences between the market and book values of land, buildings, and securities. Although wide latitude was permitted among various valuation methods, there is evidence to suggest that the adjusted reports were regarded as relevant to external report users [Reference 3, p. 29]. The actual number of firms which followed this practice was small, for the Institute of Chartered Accountants continued to favor historical cost accounting.

In 1973 the Accounting Standards Steering Committee (ASSC) of the Institute released an exposure draft which addressed price-level accounting. The basic propositions of the draft were that:

1. Companies continue to maintain historical records and issue statements in terms of historical costs;

2. Quoted companies include supplementary balance sheets and income statements adjusted for inflation in their published annual reports;

3. Conversions of historical costs be made by using a general index of the purchasing power of money [Reference 23, p. 31].

It is significant to note at this point that the draft proposed general price-level adjustments to compensate for the loss of purchasing power

caused by inflation. Neither specific price-level adjustments nor replacement costs were dealt with by the draft. These omissions were the source of considerable debate. The first objection was to the use of a single index, which, it was argued, would not be representative of any company. As a general index would be an average, those firms whose costs rose much more rapidly or slowly -- or, in rare cases, decreased -- would have statements which were severely distorted. The other major issue was that confusion to statement readers would result from the annual readjustment of ten-year summary reports being adjusted to new base years. At this point the British government interceded with the Institute and asked that the draft not be issued as a mandatory standard until a broad study of the effect of inflation on the economy had been completed. The request was honored and the draft was released in May, 1974, as a provisional standard, Statement of Standard Accounting Practice 7 (SSAP 7), with compliance recommended but not required by the Institute.

The dramatic increase in the rate of inflation in the 1970's had prompted the government to establish an independent committee to:

> . . . consider whether, and if so how, company accounts should allow for changes in costs and prices, having regard to established accounting conventions based on historic costs, the proposals for current general purchasing power accounting put forward by the Accounting Standards Steering Committee, and other possible accounting methods of allowing for price changes and to make recommendations [Reference 21, p. 23].

The committee, chaired by F. E. P. Sandilands, Chairman of the Board of Commercial Union Assurance Company, was under intense pressure to complete its study. The source of this pressure was the faltering economy. In early 1974 inflation had reached double figures; by the summer of 1975 it was between 20 and 25 percent [Reference 36, p. 42],

and the so-called "Doomsday Machine" was driving firms out of business. This "Machine" was a combination of price controls which limited profit margins and tax regulations which treated inventory profits as taxable gain. These factors caused severe cash shortages for many firms and forced weaker businesses to close. In November, 1974, as a temporary remedy, the government provided relief by deferring tax payments which had been caused solely by inventory appreciation [Reference 36, p. 43]. Because of these desperate conditions, the Sandilands Committee study, which had been expected to require over two years, was completed in only eighteen months; and its report was issued in September, 1975. The government responded immediately by approving the report and setting up the implementation procedures in November, 1975 [Reference 53, p. 15].

B. THE SANDILANDS COMMITTEE REPORT

There were 199 conclusions and recommendations contained in the Report of the Sandilands Committee, a study which has been called one of the economic landmarks of the Twentieth Century [Reference 53, p. 15]. There was a marked distinction between the position of SSAP 7, with its maintenance of the historical cost convention, and the Sandilands Report, which recommended adoption of Current Cost Accounting (CCA) and relegated historical costs to being reported only as supplemental data. Rather than the preservation of purchasing power in SSAP 7, the report stated that the preservation of the continuity of the business was the essential element of the reporting system [Reference 21, p. 26]. The committee also recommended that: (1) reports include funds flow statements with certification of adequacy of funds by the directors; (2) a comprehensive review of the tax system be initiated; (3) the temporary relief from taxes on

inventory appreciation be continued; and (4) 100 percent first-year depreciation on capital expenditures be retained. The principal recommendations regarding the CCA System itself were:

1. The unit of measurement is the monetary unit itself, rather than "purchasing power units."

2. Gains (and losses) should be separated into three categories, operating, holding, and extraordinary. Of these, operating gains are the most important for users of accounts.

3. Asset and liability values in balance sheets should be based on current "value to the business." Under most circumstances, this will be replacement cost. However, it can be "economic value" or net realizable value under some conditions.

4. Operating profit for a given year is the amount which could be distributed indefinitely to shareholders, if that year's volume, prices, and costs were sustained indefinitely. Thus, charges to operations for calculating operating gains should be based on current "value to the business."

5. Current Cost Accounting should be required for listed companies and certain others starting with the 1978 annual reports. A Steering Group should be set up under the auspices of professional accounting bodies to prepare initial standards, and in the process to resolve questions left unanswered by the Committee [Reference 53, p. 16].

As has been described in the preceding paragraphs, there was a clear distinction between the CCA and the SSAP 7 approaches to accounting for inflation. The SSAP 7 method seeks to report constant purchasing power. Inflation or, although unlikely, deflation would be adjusted for by applying a general index to all assets and liabilities. As there is a distinction between monetary and non-monetary assets, there is a distortion of a firm's results introduced into its financial reporting due to the effects of holding monetary assets. For example, a company with extensive borrowing during inflationary periods would be able to report a large but basically undistributable gain. A similar firm with identical operating results but little borrowing would report a smaller but almost

completely distributable gain. The CCA method states that a firm is an ongoing entity which must maintain its productive capacity. To preserve this capacity, the change in costs during a period would be recognized by specific price-level adjustments rather than general price changes. Lastly, money was to be the unit of measure rather than purchasing power units. This basis for statement preparation was generally understood and it was felt that any attempt to convert statements to a different measure would confuse statement users [References 36, p. 45, and 21, p. 27].

The division of profit into the three elements of operating, holding, and extraordinary incomes clearly focuses on the purpose of the business. Holding gains are defined as,

> . . . the difference between the measured value to a company of an asset at any point of time and the original cost incurred by the company in purchasing that asset (less depreciation) where appropriate [Reference 21, p. 24].

Clearly, from the definition, such gains or losses would not affect the distribution of profits unless the asset was sold. By segregating unrealized "holding" gains from operating profit, a more accurate picture of the operational success in the firm's line of business would be presented. Extraordinary gains were, as in traditional accounting, defined as unexpected profits which cannot be considered to be a part of the firm's normal business activities. Both of these elements, holding and extraordinary gains, were to be excluded from the income statement, but presented in a statement of total gains. Operating gains were regarded to be the single most important figure in a CCA statement. By definition, operating gains are revenue from the period's operations,

less the value to the business of the assets consumed in producing that revenue. This definition, coupled with the isolation of holding gains, produces a clear picture of the success of the firm in its stated field of enterprise.

The phrase "value to the business" used in the discussion of profit and throughout the report was defined thus:

> The value of a property to its owner is identical in amount with the adverse value of the entire loss, direct and indirect, that the owner might expect to suffer if he were deprived of the property [Reference 53, p. 18].

In most instances the value to a business would be the replacement cost of the asset; however, both net realizable value and discounted future earnings, or economic value, were accepted as alternatives. The greater cost, measured in monetary terms, was considered to be the most appropriate for reporting purposes.

The treatment of depreciation recommended by the committee recognized two aspects of expired costs. The first aspect was the annual charge, based on the current replacement cost or higher value as previously discussed. While that approach matched costs to revenues, it resulted in incomplete depreciation at the end of the asset's life. The second aspect of depreciation under CCA was an adjustment for backlog depreciation. The backlog adjustment was separate from the annual provision, but was carried into accumulated depreciation and a revaluation reserve and appeared on the balance sheet [Reference 21, p. 26].

Although the committee recommended that the regular revaluation of all assets be accomplished either by individual observation or through the use of indices, special emphasis was placed on the use of indices

[Reference 36, p. 43]. There were 33 industry and industrial groups for which inventory indices were available and 19 industry and industrial groups with indices for capital expenditures. Unfortunately, these available indices published by the Government Statistical Office were found by the committee to be overly broad and therefore inappropriate for use by some industries [Reference 21, p. 30]. The committee included in its report a recommendation that a regular series of specific indices be published for specific industries.

C. IMPLEMENTATION

As noted previously, the crisis confronting British industry required prompt action. The acceptance of the report and the decision to implement the recommendations for private industry, while withholding action on nationalized industries and reserving judgement on both price controls and tax policies, was completed in only two and a half months [Reference 53, p. 19]. The steering group which was formed to direct the transition from historical cost accounting to CCA was composed entirely of professionals from accounting and financial firms. Although field testing may help expedite the transition [Reference 21, p. 28], it is anticipated that the timetable of conversion to CCA reporting for 1978 annual reports (post Christmas 1977) may not be met and that a transition period of dual reporting will be required [Reference 53, p. 19].

Prior to implementation it is impossible to do more than project the impact in terms of tax revenues, response of the market, and on the auditing of financial statements. It is generally believed that, barring additional changes, there would be little change in total tax receipts to the government, but there would be a redistribution of the tax charges

[References 36, p. 45; 53, p. 21; and 21, p. 32]. The downward adjustment of earnings resulting from the use of CCA may have a significant effect on stock prices, as some previously profitable firms show losses. It may, however, have a diminished impact because of the recognition by major investors of the effect of inflation [Reference 38, p. 90]. There is considerable concern as to the capability of auditors to render opinions on CCA statements. While it is certain that auditors will become more involved in the determination of value to the business, a shift in emphasis from objectivity to fairness of presentation will be necessary. It is in this area that the steering committee must play a key role.

IV. INFLATION ACCOUNTING DEVELOPMENT IN THE UNITED STATES

A. STUDIES AND PROPOSALS BY THE ACCOUNTING PROFESSION

As noted in Chapter II, the post-World War II inflation caused a resurgence of interest in developing a method of recognizing the effects of changes in purchasing power in financial reporting. Two major professional bodies, the American Accounting Association (AAA) and the American Institute of Certified Public Accountants (AICPA), were unwilling to return to the subjective revaluation practices of the 1920's but sought, instead, to develop accounting theories and practices which preserved the concepts of reliability, objectivity, consistency, and conservatism provided by historical cost statements.

The AAA had reaffirmed in 1941 and again in 1948 that historic costs were to be used for financial reporting [Reference 27, pp. 79 and 80]. In 1951 the issuance of Supplementary Statement Number 2 marked the turning point for the AAA by recommending the issuance of general price-level (GPL) adjusted financial statements to supplement the historical cost statements. The issuance of Accounting and Reporting Standards in 1957 [Reference 27, p. 80] was significant in that, while the earlier proposal of presenting complete supplemental adjusted statements was reaffirmed, the use of either GPL or specific price adjustments was now accepted. This marked the first authoritative recognition of the possible use of the current cost method of valuation.

Committee reports through 1966 recommended that additional measures be taken to introduce revaluation methods into practice. Proposals included the use of current costs for fixed assets, the recognition of holding gains and losses, and the use of replacement costs for inventory

valuation [Reference 27, p. 80]. These efforts were followed by the 1966 Statement of Basic Accounting Theory [Reference 27, pp. 112 and 205]. This was an attempt to provide a theory which satisfied both the supporters of historical cost accounting and the proponents of inflation accounting methods by calling for dual statement presentation. The statements which recognized inflation were to be based on current costs but were also to recognize explicitly general price-level changes. Holding gains and losses were to be recognized in the income statement. This general position has been maintained to date, with the continuing endorsement of replacement cost accounting methods [Reference 3, p. 30].

The AICPA, through its various committees and study groups, and the Accounting Principles Board (APB) from 1959 to 1973 has also developed proposals for inflation accounting. During the 1940's and 1950's, Accounting Research Bulletins recommended that historical costs be used in financial reporting, but the use of price adjustments for supplemental reporting was recognized as an acceptable practice [Reference 27, pp. 266-267]. Accounting Research Study Number 3, issued in 1962, was a major effort to develop a theoretical basis for the practice of inflation accounting. The study emphasized specific price changes, or current costs, but also recommended general price-level adjustments [Reference 27, p. 207]. This study, while not requiring compliance, created extensive controversy because of its radical departure from accepted practices. A more moderate approach was taken in Accounting Research Study Number 6 [Reference 27, p. 209], issued in 1963. Based on previous research, procedures were proposed for making and reporting general price-level changes as supplemental information to historical cost financial statements.

Further field testing of the ARS No. 6 proposals by 18 companies over a two-year period led to the issuance of Accounting Principles Board Statement No. 3 in 1969 [Reference 53, p. 15, and 13, p. 38]. It was recommended that the methods for preparing general price-level financial statements contained therein be adopted and that these adjusted statements be issued as supplemental information; however, there was no requirement for compliance. Research continued through the early 1970's, with a study group recommending a much broader approach than that of APB No. 3 [Reference 47, p. 64]. These recommendations included the use of different valuation bases for different assets and liabilities and the reporting of current values.

In the mid-1970's, positions of both the AICPA and the Financial Accounting Standards Board (FASB), which was formed in 1973, were more attuned to the APB No. 3 approach of general price-level changes than the current cost recommendations of the more recent studies and literature. The FASB issued a draft, Financial Reporting in Units of General Purchasing Power, on 31 December 1974. The proposed reporting requirement would, in part, implement the provisions of APB No. 3 if the draft were adopted [Reference 10, p. 16]. In essence, the proposal would make mandatory the supplemental reporting of:

> . . . in terms of units of general purchasing power of the U.S. dollar, for each statement presented: Total revenue, depreciation, net purchasing power gain or loss from holding monetary assets, income from continuing operations, net income, earnings per share, dividends per share, inventory, working capital, net plant and equipment, total assets, and total common stockholder's equity. [Reference 23, p. 33.]

The adjustments were to be made by using the GNP Implicit Price Deflator, and the supplemental statement would include an explanation of the basis

by whith the statements were prepared. It was stated that further research was necessary on the implementation and methodology of specific price changes prior to making such reporting mandatory. Implementation of the proposal was initially planned for fiscal years beginning after January 1, 1976. Although the response of practitioners and industry was generally favorable [Reference 8, pp. 33 and 22, p. 259], the final draft had not been issued when the Securities and Exchange Commission enacted a regulation which required the reporting of specific price changes. While the SEC regulation, which is described in the next section, does not preempt the work of the FASB or preclude the issuance of its proposal recognizing general price-level changes, the FASB requirement has not been published.

B. ACTION BY THE SECURITIES AND EXCHANGE COMMISSION

The Securities and Exchange Commission (SEC), since its creation in 1933, had generally emphasized the uniform practice of accounting rather than developing accounting theories. Accounting Series Release Number 4 [Reference 27, pp. 78 and 23, p. 33] acknowledged the role of the accounting profession in developing theories and practice by requiring authoritative support for the practices used in the preparation of financial statements for listed firms. Regulation S-X [Reference 27, p. 78], issued in 1940 and revised numerous times thereafter, specified the form and content of the financial statements issued by registered companies. Again the emphasis was upon fair disclosure, while the principles to be employed were left mainly to the accounting profession. This general philosophy was stated as recently as May, 1975, when the SEC's then Chief Accountant, John C. Burton, stated that he did not believe that the SEC would become central to developing accounting

principles [Reference 14, p. 18]. However, in the same interview he stated that he felt that replacement costs were more meaningful than historical costs and that he anticipated the release of such SEC proposals, notwithstanding the previously released FASB draft dealing with general price-level adjustments.

Mr. Burton's views had been incorporated in Accounting Series Release 151, January, 1974, a year and one-half after his appointment as Chief Accountant. That release urged, but did not require, the disclosure of the extent to which inventory profits, or holding gains, were included in reported earnings [Reference 12, p. 57]. The emphasis on isolating holding gains was based on the belief that the usefulness of historical cost measurements was significantly reduced by rapid price increases. While, as noted in Chapter II, there were many authorities who shared that view, industry did not respond to the recommendation by providing the data.

A firmer position was adopted in the issuance of Securities Act Release No. 5608, August, 1975, which proposed the mandatory disclosure of some replacement cost data. This release marked the first time that a mandatory use of replacement cost methods had been officially proposed by an organization which could require compliance [Reference 30, p. 18]. In selecting replacement costs as the preferred method of inflation accounting, the SEC specifically considered the various proposals introduced in Chapter II -- general price-level adjustments, exit values, and discounted cash flows. Reproduction costs were also considered; however, the concept of replacement cost was adopted. Replacement cost was defined by the SEC as the cost to replace facilities with the lowest-cost

productive capacity equivalent to the capacity of existing facilities, not the reproduction of identical facilities. This last distinction was significant in that it provided for technological improvements to be incorporated into the reporting process. The use of replacement costs was to be on a supplemental basis and was not an attempt to develop a current value approach to complete financial reporting. It did present a major departure from the earlier position of the AICPA and that stated in the FASB proposal. Specific rather than general price changes were to be recognized, and supplemental data were to be reported for only certain specified items. A complete restatement of all financial statement items was not required. Over 350 comments were received by the SEC. While the respondents agreed on the need to recognize the impact of inflation, they generally argued against adoption of the method contained in the SEC proposal [Reference 12, p. 57].

Notwithstanding the hostile reception of the replacement cost proposal and the traditional deference to the accounting profession in developing measurement practices, the SEC issued Accounting Series Release No. 190 on March 23, 1976. This regulation, while of limited application, was of major significance; for it required a departure from historical costs in providing supplemental financial data [Reference 55, p. 19]. Affected were those firms whose inventories and gross property (before depreciation) totaled more than $100 million and made up more than 10 percent of total assets. It was to be effective for all Forms 10-K for fiscal years ending on or after December 25, 1976. There were also indications that the reporting requirement might be expanded to include smaller firms within the next few years [Reference 34, p. 28].

The detail required to be reported on the 10-K Forms was not mandatory in the published financial statements. However, general descriptions of the impact of price changes were required; and publication of quantitative data was optional [Reference 34, pp. 29 and 55, p. 20]. The SEC recognized that the regulations did not address all the aspects of inflation and that the complexity of the problem, coupled with minimal guidelines, would cause implementation difficulties. For these reasons, the regulation was regarded as experimental; and considerable latitude was permitted for developing specific techniques which seemed to be the most reasonable for a given firm [Reference 55, pp. 20 and 34, p. 28].

As defined by the SEC, replacement cost, or current replacement cost, was the lowest amount that would have to be paid in the normal course of business to obtain a new asset of equivalent operating or productive capacity [Reference 34, p. 31]. Specifically required for disclosure were:

> Current replacement cost of inventories at each fiscal year end for which a balance sheet is presented. If current replacement cost exceeds net realizable value, the amount of excess should be stated.
>
> Cost of sales based on what it would have been if current replacement cost had been used at the time sales were made for the two most recent years.
>
> Current cost of replacing (new) the productive capacity, together with the current depreciated replacement cost of the productive capacity at each fiscal year-end for which a balance sheet is presented.
>
> Depreciation, depletion and amortization estimated on the basis of average current replacement cost of productive capacity for the two most recent fiscal years.
>
> Methods used to arrive at the above, and an indication of what consideration, if any, was given in inventory and cost of sales disclosure to the related effects on direct labor, repairs and maintenance, utility and other indirect costs as a result of the assumed replacement of productive capacity.

Additional information necessary to make the results not misleading [Reference 12, p. 59].

As noted, there was considerable difference between the positions of the FASB and the SEC in their respective methods of inflation accounting. Because of the FASB's slowness in finalizing its proposal and the issuance of the SEC regulation, the United States had begun implementation of replacement cost methods and had joined the other countries which recognized specific price changes in their accounting systems rather than those which make general price-level adjustments. The goal stated by the SEC was to better satisfy the disclosure needs of individual investors. In achieving that goal, it was felt that, for large firms, the benefits clearly outweighed the expenses. It was also stated by the SEC that it did not intend to limit the development of the FASB proposal on general price-level adjustments but, rather, it hoped that the experience gained under the new regulation would assist in the development of the conceptual framework of financial statements [Reference 55, p. 20].

The SEC's ASR No. 190 also differed from the Sandilands' Committee Report described in Chapter III. While both addressed specific price changes, Sandilands proposed a new method of accounting, while the SEC required only limited supplemental reporting along with the existing historical cost financial reports. The English Current Cost Accounting (CCA) emphasized the use of governmental indices, while the SEC would accept a wide variety of different techniques, including various types of indices, direct pricing, and appraisals. The most significant difference was the treatment of net income. While Sandilands required that

the effects of restatement, including holding gains and losses, be carried through to net income, the SEC intentionally decided to omit disclosure of the replacement cost effect on net income [Reference 34, p. 29]. Further, the SEC advised statement users to exercise caution in using the supplemental data to adjust reported earnings. Finally, the SEC adopted a more aggressive implementation schedule by requiring, with few exceptions, compliance by the covered firms within the year of promulgation. The Sandilands provisions permitted a two-year period between promulgation and enactment.

To facilitate implementation, the SEC appointed an advisory committee to address problems and to publish guidance. Staff Accounting Bulletin No. 7 was released to provide definitions and to answer questions concerning the methodology of revaluation, inventory adjustment requirements, the treatment of limited use and fully depreciated assets, and similar matters. Additional bulletins were to be released as issues were identified [Reference 12, p. 60]. Further, a one-year delay for replacement cost implementation for mineral resource assets and assets located outside North America and the European Economic Community was contained in the regulation. This delay provided additional time for firms to resolve the problem with those specialized assets [Reference 12, p. 58]. The SEC also encouraged trade associations and industry groups to examine problems peculiar to themselves and to develop specific price indices and reporting methods.

Having completed the introduction to the development and enactment of replacement cost accounting, the next chapter will examine specific methods of developing the appropriate data. In Chapter VI, the first five chapters will be integrated by the examination of a firm which has implemented a replacement cost method.

V. REPLACEMENT COSTING METHODS

A. INVENTORIES

The first requirements of ASR No. 190 are to report the current replacement cost of inventories at the end of the fiscal year and to disclose the amount, if any, by which replacement costs exceed net realizable values. In addition to the reporting deferrals of one year noted in Section B to Chapter IV, certain other inventories were excepted from the revaluation requirement but were required to be disclosed separately. These exceptions are obsolete or discontinued inventories, inventories acquired under long-term fixed price contracts with more than two years remaining under the contract, and "limited use" inventories for projects that would normally not be replaced with similar type projects [Reference 34, p. 30]. The selection of specific techniques and the development of the cost figures is essentially an internal function for each firm. The decisions as to the materiality of each inventory item, or group of items, and also as to whether the item, or group of items, should be revalued at current replacement cost or at net realizable value can be made only by management. Since the SEC permits the use of estimating techniques and the disclosure of reasonable ranges for costs rather than specific figures, it is essential for management to weigh carefully the actual costs of developing precise data against the materiality of the results [Reference 34, p. 31].

The replacement costs of purchased inventory items are the easiest to determine. The current price for a material, under normal conditions and in normal quantities at the balance sheet date, is the current replacement cost for disclosure. This is, of course, the net delivered price to the firm, not just the market quote of the supplier. The

purchasing agents of firms routinely have or can easily obtain this information. No expense other than a negligible clerical charge would be incurred in compiling exact data for disclosure. In the event that a firm held raw materials for discontinued operations, the conventional practice of determining net realizable value would be employed.

Developing the replacement costs of manufactured inventories, both work-in-process and finished goods, is a more complex process. In addition to the data collected for the pricing of raw materials, current labor and overhead rates must also be gathered to enable firms to compute the reproduction costs of both classes of manufactured inventories [Reference 7, p. 26]. This information is available within each firm's cost accounting system; so, there is no additional cost required for information collection. However, the overhead rate, in addition to incorporating current costs, must also be adjusted to reflect the depreciation charge based on the current replacement costs of fixed assets rather than on historical costs. Current cost depreciation will be discussed in Section C of this chapter. In developing replacement costs, the criterion of materiality must be applied in determining whether adjustments should be made. In those cases where items are to be adjusted but the net effect of the adjustment will be small, the use of averages or estimates for arriving at inventory costs is both acceptable to the SEC and less costly to the firm. However, if such techniques are used, they must be disclosed. If manufactured inventory items are considered to be unsalable in the course of normal business, then the computation of net realizable values must be performed in accordance with traditional accounting practice.

B. COST OF SALES

The second disclosure requirement is the approximate cost of sales for the last two fiscal years. This is a considerably more difficult task than developing year-end inventory costs. The cost of sales cannot be merely a recasting of the sales throughout the year into end-of-year costs, but must recognize the total of the weighted averages of what current costs were at the times that sales were realized. The total represents the change in the firm's cost stream which occurred as sales were realized [Reference 7, p. 54]. While the last-in, first-out (LIFO) method tends to reduce the difference between purchase and current replacement costs for materials more than other accepted inventory methods, it does not insure that adjustments need not be made [Reference 19, pp. 24 and 25]. Of even greater complexity is the development of both labor and indirect cost streams. The same aspects that were discussed in manufactured inventory remain; however, the element of time is added and a stream of cost changes must now be recognized as occurring during the fiscal year. Fortunately the disclosed figure need not be a transaction-by-transaction amount, but is to be the approximation of the average replacement cost stream for the period. By analyzing the frequency and materiality of changes in the various price components, firms can determine how frequently the cost of sales figure must be adjusted. These periodically adjusted figures can then be used to develop the total average cost of sales for the fiscal year.

C. FIXED ASSETS AND DEPRECIATION, DEPLETION, AND AMORTIZATION

1. Initial Analysis

The third and fourth disclosure requirements address fixed assets. The current replacement cost of productive capacity (gross replacement

cost) and the current depreciated replacement cost of productive capacity (net replacement cost) at the end of each fiscal year must be disclosed in satisfying the third requirement. Depreciation, depletion, and amortization for the last two fiscal years, computed on estimates of average current replacement cost and based on either straight line or usage methods, are the final quantitative reporting requirement. Certain one-year reporting deferrals, as previously noted, have been made to permit further time to develop appropriate techniques. Complete exemption from replacement cost reporting is given to business segments which will not be maintained beyond the economic life of the segment's assets [Reference 34, p. 29].

Developing the replacement cost data is recognized as the most difficult task in complying with the disclosure regulation. There are two aspects involved in attempting to arrive at reasonable replacement costs. First, assets have to be analyzed in relation to the operating plans of the firm, the industry in which the firm competes, operational goals of the firm, the nature of the assets, the methods by which the assets have been acquired, and the completeness of the asset records. This analysis will save both time and expenses if it is completed prior to attempting the computation of current costs. Second, there are various acceptable techniques for computing new replacement costs. The SEC recognizes that judgement must be applied by management in developing these costs. Therefore, rather than prescribing detailed procedures, it permits the use of several techniques. Direct pricing, specific price indices, functional pricing and appraisals may be used singly or in combination [Reference 30, p. 22].

An analysis of the firm's assets and business objectives is the first step in developing replacement costs. Segments of a firm which are being discontinued can be excluded from revaluation. However, this must be disclosed in the discussion portion of the supplemental report. The net realizable value of the assets in discontinued segments represents the relevant data for reporting purposes. Similarly, excess capacity should be analyzed to determine whether its eventual use is likely. If not, developing the replacement cost for the existing excess capacity would be very misleading. SAB No. 7 provides a solution for the problem by defining productive capacity as "a measurement of a company's ability to produce and distribute" [Reference 31, p. 25]. As excess capacity exists because of an inability of the firm to distribute its maximum output, the relevant replacement cost is for a facility capable of producing the distributable output, not for the reproduction of the existing facility. Such facts should be included in the discussion portion of the report.

The nature of the industry will be instrumental in determining which valuation methods should be employed. There are two major categories of industries, based on their systems of production [Reference 3, p. 30]. The first category consists of industries in which output increases are responsive to changes in the number or technology of individual machines. Clear distinctions exist both between the plant buildings and the equipment therein and between individual equipment elements. Industries in this category include machine shops, auto manufacturers, and textile producers. Since technological changes are traceable to individual pieces of equipment, rather than being applicable to the entire plant, price indexing, which is discussed later in this chapter, can be considered as

an appropriate and reasonably efficient method of computing replacement costs. The second category of industries is that in which the addition or change to equipment directly affects the entire production process. In this category the entire plant is responsive to technological change, and individual asset items cannot be isolated as in the first category. This type of industry includes refineries, chemical processors, and basic steel producers. Here the use of functional pricing, which will be discussed later, is the most efficient method of determining replacement cost.

The nature of the assets being valued also requires careful examination. Different groupings, such as office equipment, structures, etc., can be made; and the most efficient revaluation method can be applied to each group. For example, groups of numerous low priced items, such as tools or office equipment, are not affected by rapid technological obsolescence. Price indices can be applied to such groups at little expense and will produce reasonable approximations of replacement cost [Reference 4, pp. 22 and 54, p. 55]. Structures present different problems for management. The type of industrial application, discussed in the preceding paragraph, may dictate the method of valuation. Next, any additions and modifications which may have been made must be examined; for the historical cost of the present structure on the firm's books includes the inefficiencies of piecemeal construction. Since the reporting requirement is replacement cost, not reproduction cost, the revaluation method employed must recognize the savings associated with the construction of a single complete facility, and must not merely adjust historical costs.

Methods of asset acquisition must also be examined before specific revaluation methods are applied. Assets originally purchased new by firms can be revalued by any of the recognized methods, although, as noted earlier, some methods may be more efficient than others for certain types of assets. The costs of facilities obtained used, either through a merger or by acquisition, are actually allocations of the purchase price made in accordance with GAAP and federal regulations [Reference 24, p. 27]. Price indexing cannot be applied to such artificial costs in an effort to determine the replacement cost; therefore, one of the other methods must be employed. Further complicating the problem of used assets is the requirement to disclose only new replacement costs. The use of current used equipment price quotations is not acceptable for reporting purposes. Even if it is the practice and/or intent of a firm to replace existing assets with purchased used assets, the new replacement cost is the required disclosure cost. In cases of this nature, the asset acquisition policy of the firm should be clearly explained in the narrative portion of the disclosure statement; and the difference between current new and current used costs should be identified.

Finally, management must evaluate the completeness of the firm's asset records. Specific data for each asset item are needed and should include the original purchase date and cost, whether it was new or used, the depreciation basis and life, and a complete identification and description. While these data are a normal part of most firms' accounting records, there have been indications in several articles that many firms have incomplete records. Information is missing, different methods of capitalization have been employed, and dispositions have been made without

adjustment to the records [Reference 31, p. 30]. Before employing any revaluation method, the quality of the records must be established; and, if material inaccuracies are found, corrections must be made. If essential data are not available, then methods other than price indexing must be used.

2. Application of Specific Methods

a. Direct Pricing

The best measure of replacement cost, both in terms of accuracy and objectivity, is probably direct pricing. Catalogues and vendor quotations, which may be already available in the purchasing and engineering departments of most firms, can serve as the initial data inputs. The basic prices can then, if necessary, be adjusted to recognize any additional replacement expenses such as delivery and installation. Little additional expense will be incurred in using this method. Unfortunately, the range of asset items which can be revalued by this method is somewhat limited. Items which have ready markets and experience slow technological change are ideal candidates. Examples of this type of item include furnishings, standard machinery and equipment, and office equipment. Structures, specialized and custom equipment, and process plants would be both difficult and very costly to revalue by this method [Reference 54, p. 55]. For items in the latter group, one of the other methods will be more efficient.

b. Price Indexing

Price indexing is the most frequently discussed method of revaluing fixed assets to current replacement costs. It is simple to employ, objective, and verifiable. A major attraction of this method is

that, through the use of data processing equipment, the task can be accomplished quickly and inexpensively. There are many readily available sources for indices. The price indices published by the Department of Labor [Reference 50] contains 2700 sub-indices which can be applied to fixed assets. Other government agencies at the national and state level also periodically release price information pertaining to particular industries and regions. For structures, there are several price indices available, such as the Composite Construction Cost Index, with applications by both type of construction and by region [Reference 3, p. 31]. Trade and industrial associations presently provide some price information, and, with the encouragement of the SEC and the demand for this type of data, it may be presumed that additional and more specific indices will soon be available.

The basic application of the method is quite simple. Assets must be grouped into pools of similar types. Various groupings have been proposed such as the Standard Industrial Classification Code of the Bureau of the Census [Reference 7, p. 25]. However, a system which will be the easiest to integrate with the firm's accounting system should be selected. The objective of the grouping process is to permit the application of a single index to a group. The selection of the indices to be used in the revaluation computation is the final analytical step in this method. The actual computations are very simple and can be completed quickly by data processing equipment. The basic calculation is the multiplication of historic costs by the ratio of the current data price index to the purchase date price index. For example, to revalue a machine that was purchased in 1974 for $10,000, when the price index was 120, a simple

calculation using the ratio of the current price index to the original price index would be made. If the current price index was 132, the calculation would be $10,000 x (132 ÷ 120) = $11,000.

Unfortunately, despite the advantages of price indexing, there are several major drawbacks, some of which were previously mentioned. The selection of an appropriate index is a significant problem. There can be little assurance that an index, which actually represents the average price change of a group of goods, can be matched to a grouping of specific assets within a firm. At issue is congruence, for it is difficult at best to determine the specific items which are included in the index. In the exposure draft, Securities Act Release No. 5608, the problem was specifically addressed, ". . . at present there is no generally available set of (class/price) indices which appears useful to all entities or various operating segments of the entity." [Reference 4, p. 22.] EXXON conducted experiments with general price-level adjustments in the 1960's and noted that selection of an appropriate industry index was quite difficult [Reference 39, p. 40]. Shell Oil Company has recently employed four different price indices in revaluing petroleum processing plants. The replacement costs computed with these different indices were more than 25 percent apart [Reference 54, p. 55]. Unique or specialized firms within general industrial categories may experience considerable difficulty in finding price indices that will produce realistic revaluations.

Another aspect of the index problem is in determining the accuracy with which indices incorporate technological changes. The SEC requires specific consideration of such change, by addressing the replacement rather than reproduction of productive capacity. Prices of equipment and

the qualitative and productive characteristics of equipment can and do move at different rates and even in different directions. An example of such change can be found in mini-computers, where prices have dropped dramatically while productive capacities have grown. It is apparent that the replacement costs obtained by price indexing assets, or groups of assets in which rapid obsolescence is a factor, will be of questionable relevance.

These two problems, matching indices with assets or asset groupings and technological obsolescence, coupled with the potential deficiencies in the accounting records noted earlier, present ample grounds for the belief that indiscriminate use of price indexing may produce inaccurate or even misleading results. As new and more specific indices are developed, the problem of matching can be lessened; but the most appropriate applications for price indexing will continue to be in revaluing low cost groupings of assets [References 31, p. 30; 54, p. 55; 30, p. 22; and 4, p. 22].

c. Functional Pricing

Functional pricing is the most complex method for internal replacement cost valuation. Engineering studies must be made to develop the costs of new facilities for existing types of production. These facility costs must next be reduced to the costs for some unit of productive capacity, such as gallons per week or tons per year. The unit costs are then multiplied by the capacities of the firm's present facilities to obtain the new replacement costs [Reference 54, p. 55]. This method is particularly applicable to processing and refining industries but can also be applied to most other industrial groups. While the costs developed by this method are accurate and relevant, the effort and expense

associated with functional prices from a zero base is large. For firms which have recently completed new facilities, an efficient and inexpensive adaptation of functional pricing can be employed for revaluing homogeneous facilities. The most recent cost per unit of production is applied to the capacities of the older facilities to obtain a replacement cost as of the date the newest facility was entered into the firm's financial records. This replacement cost is then multiplied by an appropriate price index to adjust to a current replacement cost [Reference 34, p. 37]. For example:

Production Line	Date of Construction	Capacity in Tons Per Year
A	1962	25,000
B	1968	40,000
C	1970	40,000
D	1975	50,000
		155,000

Cost of newest facility (D) = $2,000,000.

Unit cost in newest facility = $2,000,000/50,000 tons = $40.

Replacement cost of total capacity in 1975 = 155,000 tons x $40 = $6,200,000.

1975 price index = 140.
Current (1976) price index = 145.

Current replacement cost of total capacity = $6,200,000 x (145/140) = $6,421,429.

There are two dangers in this simplified approach. First, the age of the base facility in this adaptation is critical. Even in a low technology industry, change does occur; and there will be changes in construction methods and techniques. Since indices, as was noted earlier, do not always accurately reflect improved efficiencies, material differences between

calculated and actual replacement costs can result from using this adaptation when the base facility is more than a few years old. Second, the index must be selected with care, as was shown in the Shell Oil Company example. Even if there has been no technological change, the use of an inappropriate index can result in a material misstatement of the replacement costs for each facility group revalued by this method.

d. Appraisals

The final revaluation method is that of having the fixed assets revalued by an appraisal. There are many professional appraisal firms available. In response to the new demand for their services, entire new appraisal packages and automated programs have been developed [Reference 54, p. 54]. The advantages of this method include the absence of management bias and a reduction of the internal demands on the firms. The relevance of the costs determined by outside appraisal firms is subject to the interaction between the firms and the appraisers. Because there are appraisals for different purposes, such as liquidation, insurance and fair market value, and each reports different values, the explicit purpose of the appraisal must be made clear at the beginning of the engagement. The appraiser must also be informed of any plans for the disposition of any equipment or facilities. Lastly, full access to the asset records and the assets themselves must be provided. While the expense of using this method will depend on the extent of the services performed, it may be little more than the costs of employing one of the other methods internally.

3. Depreciation, Depletion, and Amortization

Depreciation may be developed easily after the current replacement costs have been obtained for the facilities and equipment. The disclosure requirement is for depreciation to be reported by either the straight line or a usage method. Division of the replacement cost by the expected life of the asset in years will provide the straight line depreciation charge. To compute the usage depreciation charge, the replacement cost is first divided by the expected life of the asset in units; then the unit charge is multiplied by the total units for the period to determine the usage depreciation charge. Fully depreciated assets are excluded from both the computation and the reporting of depreciation charges [Reference 34, p. 37].

Depletion will not be an issue for the first year because of the deferral granted to the extractive industries. Methods to compute relevant and reasonable charges are being examined, but specific procedures have not yet been published [Reference 54, p. 56]. The SEC regulation does not address renewable resources like timber. There are no procedures for estimating the replacement costs of such resources.

Amortization is addressed only in conjunction with financing leases, as defined by Accounting Series Release No. 147 [Reference 34, p. 29]. The amortization charge is determined by dividing the current cost of the lease by the length of the original lease.

D. OTHER ASSETS

Only productive assets and inventories are subject to revaluation and disclosure. Monetary assets are already at current value, since they are measured in dollars and the receivables are adjusted by allowances. Only

in a general price-level system, such as that proposed by the FASB, or a dual system, as proposed by Edwards and Bell [Reference 17], is it required that the restatement of monetary assets be made. Intangibles are not recognized in the regulation as being directly associated with productive capacity. Arguments on this point can be made for patents, franchises, and copyrights relative to productive capacity. Furthermore, since the SEC definition includes the "ability to distribute," trademarks and distributorships can be associated with the productive capacity of firms. Nevertheless, under the present regulation, adjustments are not required. However, consideration should be given to the disclosure of such information in footnotes if management feels that it is material and that a failure to provide the information would be misleading [Reference 34, p. 30].

Land is excluded from revaluation and reporting under the regulation. Since land is not consumed in the productive process, it is not considered to be part of a firm's capacity [Reference 34, p. 30]. This omission may tend to be misleading because of the rapid increase in land prices. Consideration should be given to the disclosure of the current value of land in the footnotes.

VI. CASE STUDY

A. BACKGROUND OF THE STUDY

The preceding chapters have examined both the nature of the problem of incorporating the effects of inflation into financial reporting and the two principal alternatives which have been widely proposed, general price-level adjustments and replacement costing. The adoption of two basically similar approaches to replacement costing, one in England and one in the United States, was described in Chapters III and IV. The methods of developing replacement costs were examined in Chapter V. Since the actual implementation of any new regulation may identify unanticipated problems or produce unexpected results, the study of a firm which had begun replacement costing was made. The purpose of the study was to identify any particular problems that were encountered, to examine the revaluation methods employed, and to determine the effects of replacement costing when contrasted with historical cost accounting. Even though, as described below, the firm performed the revaluation under the British Current Cost Accounting (CCA) system, rather than as prescribed by ASR No. 190, the basic methodology of the two systems is sufficiently similar to permit the visualization of the implementation of the SEC disclosure regulation. Because the purpose of this thesis is to examine replacement cost accounting with primary emphasis on its application in the United States, the financial statements have been somewhat condensed; however, mention will be made of those revaluation elements which are required by CCA but have been omitted in the statements. Additionally, the impressions of the individuals who assisted by providing the information for this study are considered to be important and will be presented.

The management of the subject of the study has requested that the firm's identity not be disclosed. This request was based solely on the policy of the firm's parent and sole owner, which does not generally release data concerning its subsidiaries. In response to that request, the names of the firm, the parent, members of management, an appraisal firm that participated in the revaluation and the public accounting firm which provided certain computations will be withheld, as will be the identification of the specific industry and the location of the firm. In presenting specific opinions or justifications, the source will be identified solely as management, appraiser, etc., and will be clearly distinguished from any impressions of the author of this thesis. This study is not intended to evaluate the performance of the firm, its management, or of any of the other parties who assisted in the gathering of data. In the presentation of alternatives to the methods actually employed by the firm, the reader should not infer that the actual methods were either inaccurate or inappropriate. As was discussed in Chapter V, the selection of specific methods is situational, both with respect to the specific assets being revalued and with respect to the availability of personnel, time, and money.

B. DESCRIPTION OF THE FIRM

The subject of this study is a large consumer products manufacturer which currently has approximately 10 percent of the market in its area of specialization. The firm is a custom processor for private labels nationwide, and it also processes for the bulk and institutional markets. Originated as a family owned and operated business, it demonstrated steady growth and ultimately absorbed several of its competitors. Horizontal expansion

was accomplished through the acquisition of a company in an industry closely associated with the activities of the firm. Net sales increased from $10.7 million in 1970 to over $33.5 million in 1976. The net book value of the firm's plant and equipment at historical cost is almost $10 million. The main plant is modern, with efficient production equipment and a large specialized storage capacity. The firm has made continuing efforts to increase production and to improve profits through the introduction of improved techniques and additional machinery. Significant decreases in the quantity of labor required in processing have been realized.

In the early 1970's, the firm was wholly acquired by a major British conglomerate. The new parent had world-wide interests in food and agriculture, manufacturing, trading, and shipping. Control is exercised through a previously established holding company, which is incorporated in the United States. Continuation of the modernization and expansion plans of the firm have been specifically affirmed by the parent.

Because the firm is British owned, the Sandilands Report and the subsequent approval of its recommendations, described in Chapter III, had a direct impact on the accounting practices of the firm. Although still subject to the taxation and accounting requirements existing in the United States, there was a new requirement to develop and provide replacement costs, which were in conformity to CCA practices, for consolidation by the parent. Although the implementation of the Sandilands recommendations was not required until the filing of the calendar year 1978 annual reports, the parent chose to prepare a trial set of reports for the fiscal year which ended in June 1976. The parent company prepared and issued a

procedures manual which contained instructions, recommendations, examples, and sample formats for preparing CCA reports. Buildings and land were to be revalued in their present use, regardless of plans for eventual use. Subsidiaries were cautioned to recognize that only reasonable estimates were required, and therefore excessive time and money were not to be consumed in developing their replacement costs. The use of official indices was recommended for the revaluation of equipment; however, caution was urged in the selection of a specific index. If indices were not available or were incompatible with a subsidiary, other methods such as engineering estimates, direct pricing, or appraisals were permitted. Depreciation adjustments were to be computed both for the current charge and for the backlog. Instructions for the establishment of reserve accounts were detailed.

It was recognized that inventories in many of the subsidiaries would not require revaluation. The first-in, first-out (FIFO) inventory method was practiced throughout the company, and FIFO was explicitly recognized by the Sandilands Report as being representative of current value, if the inventory turned over approximately four or more times each year. It was noted in the manual that this matter would receive further study and that additional instructions would be issued. Linked to the inventory values was the adjustment for the cost of sales. It was recognized, as with inventories, that if rapid turnover had been experienced, then an adjustment would not be needed. If an adjustment were to be made, two methods were proposed. First, a simple indexing of the cost of finished goods at the beginning of the period to the cost at the end of the period would provide a figure for the adjustment. It must be pointed out that this

figure could differ greatly from the weighted average of the changes in the cost which occurred throughout the period. The second method suggested employed the cost accounting records of the subsidiary to develop an adjustment to the cost of sales.

Additional correspondence from the parent contained further guidance and clarified issues. Meetings were held on a regional basis to help resolve problems which had been identified. Of significance to this study, it was determined that the subject firm make its cost of sales adjustment based on production costs, excluding raw material costs. This procedure was adopted because of the volatility of materials costs. It was believed that the use of raw material costs would produce misleading information.

C. DEVELOPMENT OF REPLACEMENT COST DATA

Prior to the acquisition of the firm by its British parent, it was appraised by a large regional appraisal company. Additional appraisals had been made at the end of each of the firm's fiscal years. Therefore, those data served as the basis for reporting the replacement costs of buildings and equipment. Land, although not revalued for reporting under ASR No. 190, is adjusted under CCA. The land was not included in the appraisals, but an estimate of the increase in its value was made by the management of the firm in determining its current value.

The basic practice of appraisal, by the company involved in this study, or by any appraisal company, is not unlike that of any other professional group, such as lawyers or accountants. Engagements are undertaken under the terms of a written agreement which specifies the nature of the services to be performed. In addition to providing certain technical

skills, the appraisal company exercises its expertise and judgement in developing the new values. Ethical considerations are no different from those of an accounting firm which is engated to perform an audit. A basic service is provided for other than single engagements by the offering of a five-year plan. While single appraisals are billed for the services performed, the bulk of the effort is consumed in collecting and compiling the data. Therefore, subsequent appraisals can be based on the established data base at a considerable savings. The appraisal company feels that a basic appraisal can be updated for a period of five years, but, after that, a new appraisal should be performed. Unrecorded disposals, technological changes, and other factors tend to make updating unreliable after the expiration of five years. The cost of the five-year package to the subject of this study was $20,000 for the initial appraisal. Each update is provided at a cost of $2,700.

The author visited the appraisal company to gather the following information about the appraisal process. The appraisal of the subject firm began with a thorough physical inventory and a detailed listing of the buildings and their component systems, such as foundations, heating, lighting, plumbing, walls, etc. Equipment and fixtures were also sighted and identified in detail. The detailed lists were then priced through the use of vendor quotes, catalogues, and indices. Buildings were indexed by applying regionalized component indices. The minor equipment and fixtures were grouped where possible into similar pools and direct pricing or indexing was accomplished. Major items of equipment were generally priced directly. Some items were not revalued because of an inability to determine a comparable replacement cost with any degree of accuracy, or because the age or condition of the items did not warrant revaluation within the scope of the appraisal which was performed.

It must be noted that the explicit use of the appraisal and the type of appraisal performed may not be congruent. The original 1974 appraisal was for the primary purpose of determining the fair market value of the firm. Replacement costs were, of course, developed, but many items were reported at an "as is" value or were reported at used equipment prices, as in the case of motor vehicles. The 1976 appraisal, according to the appraisal company, is oriented to reporting for insurance purposes. Again, items have been valued in some cases at other than new replacement cost and at other than their current value to the business. The author made no attempt to determine the amount of difference which might be present, but the management of the appraisal firm agreed that a variance could easily be present.

The practice of the appraisal firm is to begin developing the new replacement costs for equipment by obtaining actual prices. Technology changes are recognized in this process and, apparently, adjustments based on productive capacity of the equipment are made. If the prices for identical units cannot be obtained, prices are based on similar items. Indexing, for other than buildings, is the least preferred method. The company feels that indices are generally too broad and that prolonged use of them, rather than periodic direct pricing, can lead to rather large distortions in the replacement costs. For buildings, the technique of analysis by component parts, coupled with very specific regionalized indices, is believed to be sufficiently accurate.

The firm used the appraisal report as the basis for reporting the replacement costs of its buildings and equipment. The report was analyzed, and it was found that 30 items and item groups represented approximately 50 percent of the total fixed asset dollar balance. These 30 items were extracted from the appraisal report and a two-stage process was undertaken

to develop both the total replacement cost for the firm's assets and the CCA depreciation charge. The lives of the 30 items were re-evaluated, and adjustments were made in the work papers to reflect the new estimate of the service lives. It was considered important to adjust the lives of these 30 major items to eliminate significant depreciation overcharges in the present year. The service lives of the other hundreds of fixed asset items were not revalued for this year's statement preparation. Next, the CCA depreciation charge was computed on the bases of replacement cost and the new service life. Finally, as required by the CCA system, the depreciation backlog was computed. This backlog figure adjusts the depreciation allowance for the difference between the depreciation which has been charged and what should have been charged over the expired life at the current cost. Holding gains were also computed.

The second stage of the process was the computation of CCA depreciation and holding gains for the remaining assets listed in the appraisal. Indices were computed to reflect the replacement cost movement for the original assets, and those acquired in each successive year. These indices were applied to the historic cost depreciation charges to obtain CCA depreciation. The holding gain for 1976 was computed by applying a price increase factor to the 1975 replacement cost. Finally, the 1976 replacement cost was determined by adding to the 1975 replacement cost balance both the computed 1976 holding gain and the cost of 1976 additions, and then subtracting the 1976 depreciation charges based on replacement cost and the 1975 replacement cost of disposals. The figures obtained in this stage were then added to the figures from the first stage to obtain the total CCA depreciation charge and holding gain.

Land must be revalued under CCA but not under ASR No. 190. It is not depreciated under either system. To develop a replacement cost, an arbitrary percentage of five percent was applied to the acquisition cost of the land. The holding gain was obtained by subtracting the historic cost from the computed replacement cost.

Inventories were examined to determine whether an adjustment would be appropriate. Processed goods are carried on a FIFO inventory basis, and the inventory turnover was approximately 4.5 times per year. This rate was sufficient to permit the use of book value under the CCA system. Additionally, when analyzed under the criteria of conversion costs only, projections made by management indicated that the very slight increase in costs was immaterial. Supplies are carried on a LIFO basis at a nominal level. It was determined by management that the present book values closely approximated replacement cost, since the base level was quite small. No adjustment was made.

No adjustment was made to the cost of sales. As noted in the preceding section, a specific decision to exclude raw material costs had been made by the parent. Because of the stability of the conversion costs during the year, it was determined by the management of the firm that an adjustment was unnecessary, as the amount would be immaterial.

D. IMPACT OF REPLACEMENT COSTING

The impact in the financial reports for the firm was less than might be anticipated for most companies that may implement replacement costing. Since all fixed assets were revalued on the firm's books at the time of its acquisition, the backlog of unrecorded appreciation of the assets was eliminated. Prior to the acquisition, the historic cost of the firm's

fixed assets was under $7 million. Although both purchases and disposals have occurred, the bulk of the present $18 million replacement cost is the result of holding gains. The actual effect will be shown in simplified format. The data provided are a composite of the conventional reports which were prepared by the firm at the end of June 1976, adjustments made by the holding company and the public accounting firm, and calculations by the author of this thesis. Complete replacement cost statements have not been prepared by the firm or by the holding company for either 1975 or 1976. The current cost balances of the depreciation allowance and the CCA reserves were not available.

The calculations to determine the CCA adjustments to the fixed asset total, depreciation, a revenue reserve, and holding gain were made by the public accounting firm. The revenue reserve is an account used to accumulate the adjustment obtained when the service lives of fixed assets are extended. These data were compiled by the holding company and forwarded to the British parent for incorporation in their combined statements. Complete CCA adjusted statements have not been prepared by either the firm or the holding company. In presenting the impact of the revaluation, the author has chosen to show only those aspects of the revaluation which correspond to the disclosure requirements of ASR No. 190, rather than attempting to construct completely adjusted statements. This restricted presentation will serve to highlight the effects of replacement costing.

The only adjustments on the balance sheet are those affecting fixed assets and depreciation. Inventories were not revalued for the reasons discussed in the preceding section. Reserve account balances were not available; therefore, the adjustments have not been included as a part of the balance sheet data. Because the CCA depreciation allowance balance

as of 1975 was not available, the author has used the depreciation from the appraisal, after making an adjustment for the recognition of the changes in the service lives of the 30 assets which had been treated separately. The actual CCA depreciation charge for the period was $139,000 more than historic cost depreciation. The following data represents the effect of the revaluation in the firm's balance sheet.

	Historic Cost	CCA
FIXED ASSETS (000 omitted)	$12,235	$18,093
Less: Allowance for Depreciation	(2,495)	(5,383)
TOTAL FIXED ASSETS	$ 9,740	$12,710

While the effects of replacement costing on income are not a part of the SEC disclosure requirement, a skeleton income statement was constructed by the author to portray the impact of CCA depreciation and holding gains. Taxes have been omitted from the statement. Even though the firm suffered a substantial loss from operations and before any adjustments, the net effect of revaluation was favorable. The following simplified income statement shows the effect of the revaluation.

Sales (000 omitted)	$33,506
Expenses and Other Income	(35,029)
Loss (at historical cost)	(1,523)
Less: CCA Depreciation	(139)
	(1,662)
Plus: Holding Gain	229
Increase to Revenue Reserve	94
TOTAL DECREASE IN EQUITY & RESERVES	($1,339)

The effects of the CCA revaluations were quite large in the case of the combined statement issued by the parent company. This is not

surprising, for many of the assets have been held by the company for many years. Pretax operating profits were almost halved by the CCA adjustments (£7.9 million vice £15.6 million). The difference is composed of the adjustment for the cost of sales, £4.9 million, and depreciation, £2.8 million. Fixed assets increased from £110.4 million at historic cost to £146.8 million at replacement cost.

E. ALTERNATIVE APPROACHES

Management at the holding company indicated satisfaction with the appraisal method of developing replacement costs. The internal demands on the firm are minimized, the cost is nominal, and there is freedom from internal bias. Nevertheless, there is an interest at the holding company level in examining other methods. There is also an interest within the firm in employing indices. The principal limiting factor has been the absence of appropriate indices. The industry in which the firm competes does not presently publish data which could be used for indexing. General price indices are considered to be inappropriate by management. The firm does have both the data processing capacity and the personnel to prepare price-index based replacement cost listings, if the appropriate indices can be found or developed.

One possible approach to partial indexing would be the development of asset groupings which correspond to available indices. For example, groups of office furniture, typewriters, and standard equipment could be readily adjusted using existing indices [Reference 50]. It is unlikely, however, that indexing could be applied on a large scale successfully. Many of the processing lines are carried as single items, yet they are composed of several types of specialized processing equipment, materials

handling systems, and utility systems. Even trade association data for the firm's industry might not capture the essence of the processing lines used by this firm.

A second method, that of functional pricing, could be employed. The firm's engineering department has the capability of designing complete processing lines and developing the replacement costs for those lines. In the event of a significant technological change in the industry, this would be the most accurate method of developing the replacement cost for productive capacity. Until the firm is required to comply with the provisions of the SEC regulation, there is no need to employ this method. Under CCA the replacement costs of the assets, not their productive capacity, are the relevant figures.

Finally, the firm can employ direct pricing for many of its assets. Items such as farm equipment, office equipment, and motor vehicles have ready markets. The additional accuracy over the other methods which may be achieved must be carefully weighed against the rather extensive effort which would be required to collect current prices and apply them to the assets of the firm.

A combination of several of the methods could also be used to develop the replacement costs for the firm's assets. Two policy decisions have been made which may make a combination of methods desirable. First, the re-evaluation of remaining asset service lives, as was done for 30 line items, will be accomplished on a five-year cycle. Second, the threshold for the capitalization of costs has been increased, thereby eliminating the future entry of numerous small items into the fixed asset listing. Groupings of the remaining low cost items could be indexed to determine their replacement cost. Direct pricing could be used for those major

assets for which there is a readily available market price and which will also be evaluated for service life adjustments. The appraisal method could then be used to determine the replacement cost for buildings and items for which there was no readily available market price. Finally, a realtor could, for a nominal fee, provide an appraisal for the land owned by the firm.

VII. CONCLUSIONS

A. THE VALUE OF REPLACEMENT COSTING

Although the accounting system in the United States is based on historic costs, there has been growing recognition that the system suffers from serious deficiencies [Reference 49, p. 197]. The two principal alternatives proposed to historic costs were the subject of Chapter IV. While the action of the SEC does not directly change the system, it can be viewed as a first step toward eventual change. The arguments concerning the most appropriate of the two alternatives, replacement costing and general price-level adjustments, have yet to be resolved; but at present replacement costing is clearly the more favored [References 15, p. 65; 35, p. 19; 51, p. 42]. The replacement cost method is believed to provide data that are of greater relevance under current economic conditions.

Management will be confronted with new problems and with certain advantages. Of major concern is the reaction to the expected effect of replacement costing on income. Even though the SEC does not require such data to be disclosed, it will be quite easy for the cost of sales adjustment and replacement cost depreciation to be applied to the historic cost income figure. With very few exceptions, the replacement cost income will be lower [References 9, p. 53; 22, p. 218]. The act of disclosing replacement costs presents problems for both management and for auditors [References 11, p. 30; 47, p. 138]. The variety of revaluation methods and the perception of the subjectivity of revaluation provides the potential for claims of inadequate disclosure. The SEC has provided some latitude for auditors by exempting the replacement cost data from inclusion in the audited statements. It is believed that management will benefit from the

revaluation by receiving financial data that are more relevant to decision making [References 18, p. 242; 49, p. 197]. The reporting of the lower economic profit could also serve as an argument to: 1) base taxes on replacement cost income; 2) justify prices designed to recover current costs on cost-based contracts; and 3) counter demands for increased wages.

The value to investors cannot be determined; however, there have been several studies which have attempted to address that issue [References 38, p. 89; 28, p. 688; 37, p. 584]. The results of these studies were not conclusive, but it was observed that appropriate price-level data were not generally available and that use of such data was not understood by the general public. Based on those observations, it would seem essential that an effort be made to educate the investing public so that they will be able to gain the maximum use from availability.

B. APPROPRIATE METHODS OF DEVELOPING REPLACEMENT COSTS

Chapter V identified the various methods of replacement costing and pointed out the advantages and disadvantages of each. The study in Chapter VI served to illustrate the methods with actual implementation. There is not a single best method applicable to all firms for developing replacement costs. Factors concerning the industry, the condition of the asset records, and the availability of time, personnel, and money must all be considered in the selection of a method or a combination of methods. It is paramount that a goal of developing replacement costs which are reasonable, accurate, free from bias, and verifiable be established. The acceptance or rejection of the use of any of the methods must be weighed against the attainment of that goal.

Clearly, direct pricing best satisfies each element of the goal. Unfortunately, the range of application for this method is restricted by

both the nature of the firm's assets and the nature of the industry in which it competes. Airlines, trucking companies, and similar firms whose major assets can be priced in an open market can employ this method. If markets are limited or do not exist, the data obtained by this method will be of poor quality.

Functional pricing is an adaptation of direct pricing; however, the assurance of freedom from management bias is greatly reduced, because the engineering effort and cost accumulation is done by the firm. This weakness must be accepted in developing the replacement costs for processing plants in industries where technological change is rapid, for other methods would be even less suitable. The retention of the work papers used in developing the total plant cost can provide verifiability and can serve to check the use of inappropriate costs.

Price indexing appears to be the easiest method, but it can be the most misleading of all when applied to equipment and machinery, and to used assets. The selection of an appropriate index is difficult for many types of assets, and the records of those assets may be incomplete or inaccurate. While many of the articles cited in this thesis and the British CCA system encourage the use of indices, their use as the sole method of revaluation should be approached with caution. Used very selectively, for example in revaluing buildings where very precise indices are available, the goal stated earlier can be attained.

The appraisal method appears to have considerable merit, except in the revaluation of processing plants. The goal of revaluation is accomplished, and the cost appears to be nominal. It is believed that many of the firms that initially employ price indexing would obtain more reasonable

and accurate data by engaging an appraisal firm to perform much of the revaluation.

C. SUMMARY

This thesis has traced the evolution of replacement cost accounting from its initial recognition as an alternative to historical cost accounting to its recent incorporation into governmental regulations for financial reporting in the United States and England. The examination of the effects of inflation around the world showed that either replacement costing or general price-level adjustments had been adopted by many countries. The enactment of the replacement cost accounting by individual firms was examined in terms of the basic methods and the actual procedures employed. It was shown that the task of developing the replacement costs was neither as difficult nor as expensive as had been expected. The latitude provided by the current regulations in the United States enables firms to pursue experimental programs for the development of the data. It was also shown that, in developing the system of revaluation for a given firm, the first step must be the careful analysis of the assets being revalued, the capabilities of the firm to use the various methods, and the merits of the methods themselves. The selection of the most appropriate methods for a given firm will help insure that the reported data are reasonable, accurate, and free from bias; and that the data will be useful to both management and to investors. The only aspect of replacement costing not yet addressed by either the government or the accounting profession is that of educating the general public. This should be the final step in the implementation of the current method of replacement cost accounting in the United States.

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